



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

February 8, 2006

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations for the Tar Creek Superfund Site

FROM: David E. Cooper, Chair
National Remedy Review Board

A handwritten signature in cursive script that reads "David E. Cooper".

TO: Samuel J. Coleman, Director
Superfund Division
Region 6

Purpose

The National Remedy Review Board (NRRB) has completed its review of the proposed cleanup action for the Tar Creek Superfund Site, Operable Unit 4 in Ottawa County, Oklahoma. This memorandum documents the NRRB's advisory recommendations.

Context for NRRB Review

The Administrator announced the NRRB as one of the October 1995 Superfund Administrative Reforms to help control response costs and promote consistent and cost-effective decisions. The NRRB furthers these goals by providing a cross-regional, management-level, "real time" review of high cost proposed response actions prior to their being issued for public comment. The board reviews all proposed cleanup actions that exceed its cost-based review criteria.

The NRRB evaluates the proposed actions for consistency with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and relevant Superfund policy and guidance. It focuses on the nature and complexity of the site; health and environmental risks; the

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range of alternatives that address site risks; the quality and reasonableness of the cost estimates for alternatives; regional, state/tribal, and other stakeholder opinions on the proposed actions, and any other relevant factors.

Generally, the NRRB makes advisory recommendations to the appropriate regional decision maker. The region will then include these recommendations in the administrative record for the site, typically before it issues the proposed cleanup plan for public comment. While the region is expected to give the board's recommendations substantial weight, other important factors, such as subsequent public comment or technical analyses of response options, may influence the final regional decision. The board expects the regional decision maker to respond in writing to its recommendations within a reasonable period of time, noting in particular how the recommendations influenced the proposed cleanup decision, including any effect on the estimated cost of the action. It is important to remember that the NRRB does not change the Agency's current delegations or alter in any way the public's role in site decisions.

Overview of the Proposed Action

The Tar Creek Superfund Site is located in northeast Oklahoma in Ottawa County and comprises approximately 40 square miles (Figure 1). The Site is part of the Tri-State Mining District (hereinafter the District) that also includes southeastern Kansas and southwestern Missouri. The mining and milling of lead and zinc ores since the late 1800's has generated mining and milling residues that contain elevated concentrations of lead, cadmium and zinc. These residues present a potential risk of exposure to human health and the environment. The smelting of lead at the Site generated smelter wastes which also pose a potential risk of exposure. Mining ceased in the region by 1970, and in 1983 the Site was placed on the National Priority List (NPL). The Region has previously addressed surface water/ground water, urban residential properties and high access areas and the Eagle-Picher Office Complex (abandoned mining chemicals) through earlier records of decision. The subject of this board review is Operable Unit 4, which will address remaining sources, e.g., chat piles, mine and mill waste, smelter waste, and flotation ponds. The investigation of the Site under OU4 includes characterization and evaluation of the both the source media (mine and mill residues and smelter waste) and the affected media, e.g., transition zone soils.

NRRB Advisory Recommendations

The NRRB reviewed the information package describing this proposal and discussed related issues with your staff as well as representatives of the Quapaw Tribe and the State of Oklahoma (see attached attendee list) on January 18 and 19, 2006. Based on this review and discussion, the board offers the following comments:

1. The Board notes that the package describing the Region's approach (including the preferred alternative) is still evolving. As a result, there are significant uncertainties regarding key components of site cleanup that make it difficult for the Board to evaluate potential alternatives and offer specific recommendations on some aspects of the current approach.

2. The preferred alternative as presented to the Board has a highly uncertain cost due to the unknown volume of chat that will be sold for safe commercial use versus the amount that will be remediated under Superfund authority. The Board recommends that the Region continue to work to maximize the volume of chat that can be appropriately reused to minimize the volume to be remediated.
3. The cost estimate presented to the Board did not include remediation of contaminated source material remaining after the sale and removal of chat piles for commercial uses. The current expectation is that remediation of the chat pile areas will be included as part of the commercial use of the chat pile. However, to have a complete picture of overall costs at the site, the Board recommends that the cost estimates in the decision documents include the cost to remediate the areas around the chat piles that will be sold and removed, regardless of who will be performing the remediation.
4. The written material provided to the Board implies that consumption of local beef and milk and exposure to soils are the pathways that drive Native American risks and that these risks are based only on exposure modeling, as opposed to actual samples of local beef and milk. In the discussion at the meeting, the Region clarified that consumption of contaminated plants is a very significant exposure pathway, and that risks associated with this pathway were based on sampling of plant tissues. However, it was unclear to the Board whether the plant consumption exposure pathway related to children or adults. The Board also noted that at this site Native American exposure scenarios lead to different lead remedial goals than for the general population, i.e. 31 parts per million (ppm), which is background and based on a number of unique tribal exposures, as compared to 500 ppm for the general population based on typical residential exposures. The Board recommends that the decision documents clarify the exposure pathways that account for the greatest risk and how those exposures were used as the basis of the cleanup levels for Tribal exposures. In addition, the Board recommends that the decision documents clarify how the general population's remedial goals will be protective for the general population's exposures.
5. The package presented a preference for removal of chat piles and chat bases on Tribal properties, whereas, containment was preferred for non-Tribal properties. The Board recommends that the decision documents describe why different approaches are being proposed based on property ownership.
6. The materials presented to the Board did not indicate whether each alternative met the NCP protectiveness criterion. The Board recommends that the Region clarify in the decision documents whether various alternatives provide protection of human health and the environment.
7. The package provided to the Board did not include future land use plans for Tribal and non-Tribal properties. The Board recommends that the decision documents more clearly describe future anticipated land use in light of the 1995 land use guidance "Land Use in the CERCLA Remedy Selection Process" (OSWER Directive Number 9355.7-04).

8. At the meeting, the Tribe and the State indicated concerns with long-term institutional controls (ICs) which may be part of the preferred alternative. The Board also notes that ICs may be needed during the remedial action. The Board recommends that the decision documents clarify the objectives and types of ICs that may be used in both the short-term and long-term and their relative permanence and effectiveness.

9. The Board notes that injection of chat into mine workings, which was included as an optional component of the preferred alternative, is significantly more costly than other options. The Board recommends that the decision documents describe the advantages and disadvantages of managing chat by various means, including potential placement into mine workings or subsidence areas. For example, the Board recommends that the Region describe the potential long-term effectiveness, cost, and community acceptance related to use of chat for subsidence fill or injection into mine works, which may reduce operations and maintenance costs associated with surface containment or provide a beneficial increase in alkalinity of mine water.

10. The material presented to the Board did not include a discussion of metal bioavailability and its potential impact on remedy selection. The Board recommends the Region evaluate whether considering bioavailability may have an impact on remedial goals for soils. The Board also recommends that the Region discuss this issue in the decision documents, e.g., in the section which summarizes uncertainty of the risk assessment.

11. The Board notes that the proposed remedy is directed primarily at lead contamination in source materials and soils. However, other contaminants in source material at the site, particularly zinc, may be the contaminant of most concern in sediment. The board recommends that the decision documents note that the preferred alternative, by addressing the source material to reduce lead exposures to terrestrial receptors, will also reduce the release of zinc, which may be important to receptors associated with sediments at the site.

12. The Board notes that in the material presented to the Board, the wording of the human health remedial action objectives (RAOs) based on blood lead levels is unclear. The Board recommends that the Region revisit this wording by considering the Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action, (OSWER Directive 9355.4-12, July 14, 1994). which states: "...Generally, OSWER will attempt to limit exposure to soil lead levels such that a typical (or hypothetical) child or group of similarly exposed children would have an estimated risk of no more than 5% exceeding the 10 mg lead/dl blood lead level."

13. In the material presented to the Board, the use of the term "principal threat waste" did not appear to be consistent with EPA guidance "A Guide to Principal Threat and Low Level Threat Wastes,"(OSWER Directive 9380.3-06FS, November 1991). In addition, the Board notes that if principal threat wastes are present at the site, the NCP establishes an expectation for the treatment of those materials. The Board notes that from the information presented to the Board, there did not appear to be principal threat waste present at the site. The Board recommends that this be clarified in the decision documents.

The NRRB appreciates the region's efforts in working together with the potentially responsible parties, state, and community groups at this site. We request that a draft response to these findings be included with the draft Proposed Plan when it is forwarded to your OSRTI Regional Support Branch for review. The Regional Support Branch will work with both myself and your staff to resolve any remaining issues prior to your release of the Proposed Plan. Once your response is final and made part of the site's Administrative Record, then a copy of this letter and your response will be posted on the NRRB website.

Thank you for your support and the support of your managers and staff in preparing for this review. Please call me at (703) 603-8763 should you have any questions.

cc: M. Cook (OSRTI)
E. Southerland (OSRTI)
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NRRB members